REMARKS

Claims 1 - 8 have been canceled and new claims 9-13 have been added to point out the invention. New claim 9 corresponds to canceled claim 4.

The specification has been amended to correct the symbol "Nd" to -- υ d—in Tables 5-9. This amendment is being made for the purpose of correcting an obvious typographical error and the full Tables have been set forth in this Amendment with the change shown by strikethrough and underlining.

In response to the rejection of claim 1 under 35 U.S.C.§112, second paragraph, claim 1 has been canceled.

Claims 1-3, 5 and 6 were rejected under 35 U.S.C.§102(b) as being anticipated by JP60-200842A (the '842 patent).

Reconsideration is requested.

As noted above, new claim 9 is based on original claim 4 which was not anticipated by the '842 patent.

The glass of new claim 9 is a SiO_2-PbO-alkali metal oxide glass is made of essential ingredients which are entirely different from the glass of the cited reference which is a SiO_2-B_2O_3-Al_2O_3-alkali metal oxide glass and thus has a glass composition which is largely different from the cited reference. This is evident from a review of Table 1.

Specifically, the glass of new claim 9 differs from the glass of the cited reference in that the former contains 14-50% PbO and 0-5% B_2O_3.

In the SiO_2-PbO-alkali metal oxide glass, PbO is effective for producing a high-refractive, high dispersion glass and for reducing viscosity of the glass. If the amount of this

ingredient is less than 14%, the effect of reducing viscosity becomes insufficient and, if the amount of this ingredient exceeds 50%, refractive index becomes too high and it becomes difficult to obtain sufficiently high transmittance in the short wavelength region and therefore becomes unsuitable for an optical system using the i-line.

In the glass of the present invention, B_2O_3 may be added as an optional ingredient for forming glass. If, however, the amount of this ingredient exceeds 5%, it tends to cause deterioration in the chemical properties of the glass and, therefore, the amount of this ingredient should be 5% or less.

In the examples of the '842 patent, there is no glass that satisfies even one of the above described compositions concerning PbO and B_2O_3 and there is no disclosure or suggestion in the cited reference as to the concept of the present invention for restricting the amount ranges of these ingredients. For these reasons, it is requested that new claims 9-13 not be rejected over the '842 patent.

Claims 1-3, 5 and 6 were rejected under 35 U.S.C.§102(b) as being anticipated by JP60-77144 (the '144 patent).

Reconsideration is requested.

Since the glasses of the examples of the cited reference are mixture of oxides and fluorides and cannot be compared directly with the glass of new claim 9, we have calculated the quantity of metal fluorides of the cited reference as metal oxides and recalculated the composition so that the total amount of the metal oxides of each example of the cited reference will become 100%. The amount of F is compared by using the values of the respective examples.

The glass of new claim 9 which is a SiO_2-PbO-alkali metal oxide glass is a glass made of essential ingredients which are entirely different from the glass of the cited reference which

is a SiO_2-B_2O_3-Al_2O_3-alkali metal oxide/fluoride glass and thus has a glass composition which is largely different from the cited reference. This is evident form Table 2.

Specifically, the glass of new claim 9 differs from the glass of the cited reference in that the former contains 14-50% PbO, 0-5% B_2O_3 and 0-2% F.

In the glass of the present invention, the amount of PbO should be in the range of 14-50% and the amount of B_2O_3 should be in the range of 0-5% for the reason stated above with respect to the '842 patent. In the glass of the present invention, F is effective for restraining the compaction phenomenon of the glass and adjusting refractive index and viscosity of the glass but if the amount of this ingredient exceeds 2%, volatilization of F becomes excessive with resulting difficulty in providing a homogeneous glass.

In the examples of the cited reference, there is no glass that satisfies even one of the above described compositions concerning PbO, B_2O_3 and F and there is no disclosure or suggestion in the cited reference as to the concept of the present invention for restricting the ranges of the amounts of these ingredients. For these reasons, it is requested that the '144 patent not be applied to reject the newly presented claims.

Claims 1-3, 5 and 6 were rejected under 35 U.S.C.§102(b) as being anticipated by U.S. 4,721,690 (the '690 patent).

Reconsideration is requested.

The glass of new claim 9 differs greatly from the glass of the '690 patent in its composition. Specifically, in the glass of new claim 9,the amount of TiO_2 is restricted to 0-0.2%. This ingredient is effective for adjusting refractive index and Abbe number of the glass and restraining the compaction phenomenon and solarization due to radiation of ultraviolet ray or laser

beam of a high level but if a large amount of this ingredient is added, transmittance in the short wavelength region is deteriorated and therefore the amount of this ingredient should be 0.2% or less. In contrast, the glass of the cited reference requires this ingredient as an essential ingredient in the amount of 0.6-2%.

For these reason, it is requested that this ground of rejection be withdrawn.

Claims 1-3, 5 and 6 were rejected under 35 U.S.C.§102(b) as being anticipated by U.S. 4,225,459 (the '459 patent).

Reconsideration is requested

The glass defined by new claim 9 is made of essential ingredients which are entirely different from the glass described in the '459 patent and thus has a glass composition which is largely different from the '459 patent.

Specifically, the glass of new claim 9 differs from the glass of the cited reference in that the former contains 40-70% of SiO_2, 14-50% PbO, 0-5% B_2O_3 and 0-2% F.

In the SiO_2-PbO-alkali metal oxide glass of the present invention, SiO_2 is an indispensable ingredient for forming glass and can impart the glass with properties which are peculiar to the SiO_2-PbO glass by combination with PbO. If the amount of this ingredient is less than 40%, refractive index tends to become excessively high and transmittance becomes insufficient in the short wavelength region which is unsuitable for an optical system using the i-line and, if the amount of this ingredient exceeds 70%, viscosity of the glass becomes too high with resulting difficulty in providing a homogeneous glass.

In the glass of the present invention, the amount of PbO should be in the range of 14-50% and the amount of B_2O_3 should be in the range of 0-5% for the reason stated above with

respect to the '842 patent and the amount of F should be in the range of 0-2% for the reason stated above with respect to the '144 patent.

In the examples of the '459 patent, there is no glass that satisfies even one of the above described compositions concerning SiO_2, PbO, B_2O_3 and F and there is no disclosure or suggestion in the cited reference that would suggest to a skilled artisan to restrict the quantities of these ingredients in any particular composition. For these reasons, it is requested that the '459 patent not be applied to reject the newly presented claims.

An early and favorable action is earnestly solicited.

Respectfully submitted,

James V. Costigan
Registration No. 35,669

HEDMAN & COSTIGAN, P.C.
1185 Avenue of the Americas
New York, NY 10036
(212) 302-8989

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450 on 9/17/03